

## ABSTRACT OF THE INVENTION

[0096] An oxide and an oxynitride films and their methods of fabrication are described. The oxide or the oxynitride film is grown on a substrate that is placed in a deposition chamber. A silicon source gas (or a silicon source gas with a nitridation source gas) and an oxidation source gas are decomposed in the deposition chamber using a thermal energy source. A silicon oxide (or an oxynitride) film is formed above the substrate wherein total pressure for the deposition chamber is maintained in the range of 50 Torr to 350 Torr and wherein a flow ratio for the silicon source gas (or the silicon source gas with the nitridation source gas) and the oxidation source gas is in the range of 1:50 to 1:10000 during a deposition process.